

Application No. 10/735,510
Response to Office Action

Customer No. 01933

Listing of Claims:

1. (Currently Amended) A performance evaluation apparatus comprising:

a reference-performance data supplying unit for successively supplying reference-performance data, ~~the reference performance data prepared for designating a pitch of a musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be vanished terminated;~~

~~a~~ an actual-performance data supplying unit for successively supplying actual-performance data including a time of instructing to generate actual generation of a sound of a musical sound at the designated pitch and a time of instructing to vanish actual termination of the sound of the musical sound;

a reference on-period extracting unit for extracting a reference on-period indicative of a period between the time at which the sound of the musical sound should be generated and the time at which the sound of the musical sound should be vanished terminated, based on the reference-performance data supplied from the reference-performance data supplying unit;

a real on-period extracting unit for extracting a real on-period indicative of a period between the time of instructing to generate actual generation of the sound of the musical sound

Application No. 10/735,510
Response to Office Action

Customer No. 01933

and the time of instructing ~~to vanish~~ actual termination of the sound of the musical sound, based on the actual-performance data supplied from the actual-performance data supplying unit;

25 a judging unit for judging whether or not the reference on-period extracted by the reference on-period extracting unit and the real on-period extracted by the real on-period extracting unit overlap with each other ~~or not~~;

30 a comparing unit for ~~compare~~ comparing the pitch of the sound generated in the reference on-period extracted by the reference on-period extracting unit and the pitch of the sound generated in the real on-period extracted by the real on-period extracting unit, only when the judging unit determines that the reference on-period and the real on-period overlap with each 35 other; and

40 an evaluation score calculating unit for adding an evaluation point to an evaluation score [[,]]) when the comparing unit determines that both the pitches are the same, and for subtracting the evaluation point from the evaluation score [,,] when the comparing unit determines that both the pitches are not the same.

2. (Currently Amended) The performance evaluation apparatus according to claim 1, wherein the reference-performance data supplying unit comprises:

Application No. 10/735,510
Response to Office Action

Customer No. 01933

- a performance-data memory for storing a series of data
5 including on-event data instructing to initiate initiation of
sound generation of the musical sound at the designated pitch,
off-event data for instructing to vanish termination of the sound
of the musical sound, and a time period between the on-event and
the off-event; and
10 a reading out unit for reading out and supplying event data
corresponding to the time period from the performance-data
memory.

3. (Currently Amended) A performance evaluation program for
causing a computer controlled performance evaluation apparatus to
execute a procedure comprising:

- a step of successively supplying reference-performance data
5, the reference performance data prepared for designating a pitch
of a musical sound for generating a sound, a time at which a
sound of the musical sound should be generated and a time at
which the sound of the musical sound should be vanished
terminated;
10 a step of successively supplying actual-performance data
including a time of instructing to generate actual generation of
a sound of a musical sound at the designated pitch and a time of
instructing to vanish actual termination of the sound of the
musical sound;

Application No. 10/735,510
Response to Office Action

Customer No. 01933

15 a step of extracting a reference on-period indicative of a period between the time at which the sound of the musical sound should be generated and the time at which the sound of the musical sound should be vanished terminated, based on the supplied reference-performance data;

20 a step of extracting a real on-period indicative of a time period between the time of instructing to generate actual generation of the sound of the musical sound and the time of instructing to vanish actual termination of the sound of the musical sound, based on the supplied actual-performance data;

25 a step of judging whether or not the extracted reference on-period and the extracted real on-period overlap with each other or not;

30 a step of comparing the pitch of the sound generated in the real on-period with the pitch of the sound generated in the reference on-period, only when it is determined that the reference on-period and the real on-period overlap with each other; and

35 a step of adding an evaluation point to an evaluation score [[,]] when it is determined that both the pitches are the same, and subtracting the evaluation point from the evaluation score [[,]] when it is determined that both the pitches are not the same.

Application No. 10/735,510
Response to Office Action

Customer No. 01933

Claims 4-16 (Canceled).

17. (Currently Amended) A performance evaluation apparatus comprising:

a performance designating unit for designating a pitch of a sound-generation event contained in music data and a sound-generation period between a time of initiating sound generation and a time of ~~vanishing~~ terminating the sound generation;

10 a performance detecting unit for detecting a pitch of a performed musical sound and a time of initiating performance of the musical sound;

15 a pitch judging unit for judging whether or not the pitch of the performed musical sound detected by the performance detecting unit coincides with the pitch of the sound-generation event designated by the performance designating unit;

20 a timing judging unit for determining that there is a coincidence in timing [,] when one of: (i) the performance detecting unit detects the time of initiating performance within the sound-generation period designated by the performance designating unit, ~~or when~~ and (ii) the performance designating unit designates the time of initiating sound generation within a predetermined time period after the time of initiating performance detected by the performance detecting unit, and for

Application No. 10/735,510
Response to Office Action

Customer No. 01933

determining that there is no coincidence in timing [[,]] when one
of: (i) the performance detecting unit does not detect the time
25 of initiating performance within the sound-generation period, or
when and (ii) the performance designating unit does not designate
the time of initiating sound generation within the predetermined
time period after the time of initiating performance detected by
the performance detecting unit; and

30 a performance evaluation unit for adding an evaluation point
to the evaluation score [[,]] when the pitch judging unit
determines that the pitch of the performed musical sound detected
by the performance detecting unit coincides with the pitch of the
sound-generation event designated by the performance designating
35 unit and when the timing judging unit determines that there is a
coincidence in timing, and for subtracting the evaluation point
from the evaluation score [[,]] when the pitch judging unit
determines that the pitch of the performed musical sound detected
by the performance detecting unit does not coincide with the
pitch of the sound-generation event designated by the performance
40 designating unit or when the timing judging unit determines that
there is no coincidence in timing.

18. (Currently Amended) The performance evaluation
apparatus according to claim 17, wherein the timing judging unit
judges whether or not there is a coincidence in timing for each

Application No. 10/735,510
Response to Office Action

Customer No. 01933

5 pitch designated by the performance designating unit [,] when the performance designating unit designates plural pitches of sound-generation events and plural sound-generation periods.

19. (Currently Amended) The performance evaluation apparatus according to claim 17, further comprising:

a time setting unit responsive to a setting operation for setting a time period, and

5 wherein the timing judging unit determines that there is a coincidence in timing [,] when the performance designating unit designates the time of initiating sound generation within the time period set by the time setting unit.

20. (Currently Amended) A performance evaluation program executing for causing a computer controlled performance evaluation apparatus to execute a procedure which comprises:

5 a ~~first step~~ of designating a pitch of a sound-generation event contained in music data and a sound-generation period between a time of initiating sound generation and a time of ~~vanishing~~ terminating the sound generation;

a ~~second step~~ of detecting a pitch of a performed musical sound and a time of initiating the performance;

10 a ~~third step~~ of judging whether or not the pitch of the ~~detected~~ musical sound detected in the ~~second step~~ coincides with

Application No. 10/735,510
Response to Office Action

Customer No. 01933

the designated pitch of the sound-generation event designated in
the first step;

15 a fourth step of determining that there is a coincidence in timing [[,]] when one of: (i) the time of initiating the performance is detected in the second step within the designated sound-generation period, designated in the first step, or when and (ii) the time of initiating sound generation is designated in the first step within a predetermined time period after the time of initiating performance is detected in the second step, and determining that there is no coincidence in timing [[,]] when one of: (i) the time of initiating the performance is not detected in the second step within the designated sound-generation period, designated in the first step, or when and (ii) the time of initiating sound generation is not designated in the first step within the predetermined time period after the time of initiating performance is detected in the second step; and

25 a fifth step of adding an evaluation point to the evaluation score [[,]] when it is determined in the third step that the detected pitch of the performed musical sound detected in the second step coincides with the designated pitch of the sound-generation event designated in the first step and when it is determined in the forth step that there is a coincidence in timing, and subtracting the evaluation point from the evaluation score [[,]] when it is determined in the third step that the

Application No. 10/735,510
Response to Office Action

Customer No. 01933

40

~~detected~~ pitch of the performed musical sound ~~detected in the~~
~~second step~~ does not coincide with the ~~designated~~ pitch of the
sound-generation event ~~designated in the first step~~ or when it is
determined ~~in the forth step~~ that there is no coincidence in
timing.

5

21. (New) A performance evaluation apparatus comprising:
a reference-performance data supplying unit for successively
supplying reference-performance data designating a pitch of a
musical sound for generating a sound, a time at which a sound of
the musical sound should be generated and a time at which the
sound of the musical sound should be terminated;

10

an actual-performance data supplying unit for successively
supplying actual-performance data including a time of instructing
actual generation of a sound of a musical sound at the designated
pitch and a time of instructing actual termination of the sound
of the musical sound;

a period setting unit for setting an evaluation period in
accordance with contents of the reference-performance data;

15

a performance data comparing unit for comparing the
reference-performance data supplied by the reference-performance
data supplying unit and the actual-performance data supplied by
the actual-performance data supplying unit within the evaluation
period set by the period setting unit;

Application No. 10/735,510
Response to Office Action

Customer No. 01933

a performance evaluation unit for evaluating a comparison
20 result output by the performance data comparison unit; and

an evaluation outputting unit for displaying an evaluation
result output by the performance evaluation unit on a display
device.

22. (New) The performance evaluation apparatus according
to claim 21, wherein the performance data comparing unit
comprises:

5 a reference on-period extracting unit for extracting a
reference on-period indicative of a period between the time at
which the sound of the musical sound should be generated and the
time at which the sound of the musical sound should be
terminated, based on the reference-performance data supplied from
the reference-performance data supplying unit;

10 a real on-period extracting unit for extracting a real
on-period indicative of a period between the time of instructing
actual generation of the sound of the musical sound and the time
of instructing actual termination of the sound of the musical
sound, based on the actual-performance data supplied from the
15 actual-performance data supplying unit;

a judging unit for judging whether or not the reference
on-period extracted by the reference on-period extracting unit

Application No. 10/735,510
Response to Office Action

Customer No. 01933

and the real on-period extracted by the real on-period extracting unit overlap with each other; and

20 a comparing unit for comparing the pitch of the sound generated in the reference on-period extracted by the reference on-period extracting unit and the pitch of the sound generated in the real on-period extracted by the real on-period extracting unit, only when the judging unit determines that the reference on-period and the real on-period overlap with each other; and

25 wherein the performance evaluation unit adds an evaluation point to an evaluation score when the comparing unit determines that both the pitches are the same, and subtracts the evaluation point from the evaluation score when the comparing unit

30 determines that both the pitches are not the same.

23. (New) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a number of musical sounds contained in the reference-performance data.

24. (New) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a lapse of a predetermined time period.

Application No. 10/735,510
Response to Office Action

Customer No. 01933

25. (New) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period based on identification data contained in the reference-performance data.

26. (New) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a length of on-period of musical sound contained in the reference-performance data.

27. (New) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a tempo of the reference-performance data.

28. (New) The performance evaluation apparatus according to claim 21, wherein the apparatus further comprises:

an evaluation storing unit for storing the evaluation result with respect to a previous predetermined period evaluated by the performance evaluation unit; and

5 a judging unit for judging whether a current evaluation result output by the performance evaluation unit is better, the same as or worse than the previous evaluation stored in the

Application No. 10/735,510
Response to Office Action

Customer No. 01933

evaluation storing unit, and for providing the judging result to
10 the evaluation outputting unit.

29. (New) A performance evaluation program for causing a computer controlled performance evaluation apparatus to execute a procedure which comprises:

successively supplying reference-performance data
5 designating a pitch of a musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be terminated;

successively supplying actual-performance data including a time of instructing actual generation of a sound of a musical sound at the designated pitch and a time of instructing actual termination of the sound of the musical sound;

setting an evaluation period in accordance with contents of the reference-performance data;

15 comparing the reference-performance data and the actual-performance data within the set evaluation period;

evaluating a result of the comparison; and

displaying a result of the evaluation on a display device.